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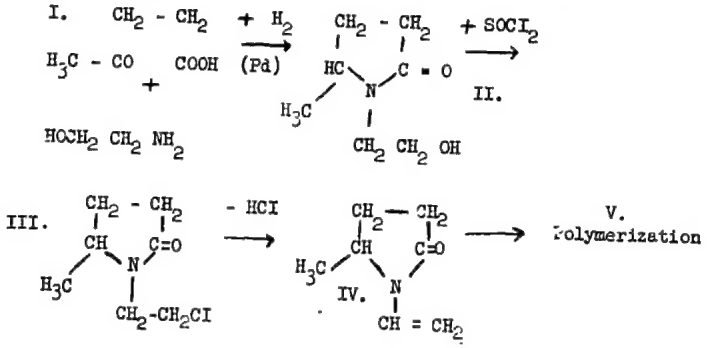
A NEW METHOD OF SYNTHESIZING POLYMERIC N-VINYLLACTAM

[Comment: The following is a translation of a German abstract in Chemische Technik, Vol 6, No 11, Berlin/Leipzig, 1954, p 618, based on the Hungarian article by R. Bacskai and J. Barabas published in Magyar Kemiai Folyoirat, Vol 60, 1954, pp 145-147.]

Polyvinylpyrrolidone (PVP) is an excellent absorbent of toxins. When combined with other drugs it prolongs the period during which these drugs remain in the body and thus brings about a considerable improvement in the specific therapeutic action of the drugs. The technical preparation of PVP presents some difficulties. An attempt to find new methods for the preparation of PVP and its homologs has resulted in the following simple synthesis of N-vinyl-5-methyl-2-pyrroli-done from levulinic acid and ethanolamine:



Hydrogenation is carried out at room temperature and 10-13 atmospheres. Purification of II can be carried out by distilling this compound in vacuum (b pt 148-155° at 5 mm Hg). Compound II is dissolved in benzene, then $SOCl_2$ is added slowly (dropwise) to the solution, which in the meantime is being cooled with ice and stirred rapidly. After this, SO_2 and HCl are removed by boiling and the benzene is distilled off. Compound III is purified by distilling it in a vacuum (b pt 102-7° at 1-2 mm Hg). Hydrogen chloride is removed from III by treating this compound with a suspension of NaOH in benzene. Compound IV is purified by subjecting it to vacuum distillation (b pt 70° per [sic] 3 mm Hg). Polymerization of IV is carried out in a sealed tube at 100° after addition of 1% of H_2O_2 and 1% of NH_3. The polymer is completely soluble in water, but differs from the monomer in that it is not soluble in ether.. The physiological activity of the substance that has been prepared is being investigated.

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